REMARKS

In the outstanding Action, the Examiner issues a restriction requirement with respect to newly added claims 13-14 and then withdraws these claims from consideration as being directed to a non-elected invention. Applicant respectfully traverses this restriction and requests the Examiner to consider these claims in the pending application. The Examiner asserts that an oil scavenge tube is unrelated to an airfoil of a gas turbine engine. Applicant disagrees with this basis and asserts that both components are related as components of a gas turbine engine. Given the similarity of the claimed method with respect to cleaning gas turbine engine components set forth in all of the claims, a search and examination of the subject matter of claims 13-14 would not unnecessarily burden the Examiner. Moreover, the Examiner has not pointed to distinctive class and subclasses for each alleged separate invention.

In view of the foregoing, the Examiner is kindly requested to consider all claims in the subject application. The Examiner is also requested to withdraw the finality of the rejection.

In the Action, claim 1 was then rejected under 35 USC Section 112, first paragraph, because of the use of "after operation of a gas turbine engine." Applicant disagrees with this rejection and asserts that the claim is fully supported by the specification. However, independent claim 1 has been further clarified as supported by pages 3-6 of the specification.

Lastly, claims 1, 4-6 and were rejected under 35 USC Section 103(a) as being unpatentable over US Patent 3,350,223 to Monteath (Monteath) in view of US Publication 2004/0065347 to Awad (Awad).

The foregoing rejection is respectfully disagreed with, and is traversed below.
Independent claim 1 recites:

1. A method of cleaning a gas turbine engine component to remove blockage

comprising:

providing a gas turbine engine comprising a fan, a plurality of compressors, a combustion chamber, and a turbine including an annular rear turbine frame supporting a bearing which rotatably supports an aft end of a shaft, the engine also including an oil scavenge tube of the turbine rear frame, wherein the gas turbine engine has been in service and the tube includes blockage as a result of this operation of the gas turbine engine; and

providing a mobile flushing unit and cleaning the oil scavenge tube of the gas turbine engine, as follows:

connecting two flexible hoses to the oil scavenge tube by connecting one flexible hose of the mobile flushing unit to one end of the tube and connecting another flexible hose of the mobile flushing unit to a second end of the tube, wherein only two hoses are connected to the tube, and each hose has only one opening at each end and is connected to each end of the oil scavenge tube such that fluid circulates through the hoses;

flowing compressed air through each hose and the tube for a predetermined amount of time;

pumping a cleaning fluid through each hose and the tube for a predetermined amount of time;

ceasing the cleaning fluid flow, followed by purging with the air to remove the cleaning fluid from the tube;

pumping water through each hose and the tube for a predetermined amount of time;

ceasing water flow, followed by another purge with the air to remove the water from the tube;

disconnecting each hose from the tube, wherein the blockage is removed from the tube and the gas turbine engine component is repaired.

It is asserted that Monteath, whether viewed alone or in combination with Awad, does not disclose nor suggest all of the features set for in Applicant's independent claim 1. It is respectfully pointed out that Monteath is directed to simultaneously cleaning several components of an automobile engine. In particular, Monteath provides a method of cleaning a cooling system of an internal combustion engine of an automobile which will simultaneously clean the engine block, the radiator, the heater, and any auxiliary components such as the cooling system of the

automatic transmission and the torque converter. (Col. 2, lines 46-51).

In contrast and as explained above, the subject claims are directed to providing a gas turbine engine and cleaning blockage from one particular component of the gas turbine engine.

The Examiner states at page 5 of the Action that it would be well within the level of the skilled artisan to apply the teachings of Monteath (and Awad) to cleaning gas turbine engines because gas turbines includes internal combustion engines and gas turbine engine are analogous to internal combustion engines since they are both combustion engines. Applicant respectfully disagrees with this analysis.

First, it is respectfully pointed out that in evaluating obviousness art must be analogous art. Art would be considered analogous if it is one which, because of the matter with which it deals, logically would have commanded itself to an inventor's attention in considering the inventor's problem. See *In re Clay*, 966 F.2d at 659, 23 USPQ at 1060-61. It is asserted that Monteath is nonanalogous art and the skilled artisan would not be motivated to look to Monteath for guidance. Monteath does not provide a gas turbine engine or remotely relate to the repair/cleaning of a particular gas turbine engine component. The fields of endeavor are completely distinct. Moreover, as the Examiner would appreciate the functioning, components and requirements of a gas turbine engine (i.e., a jet engine) are completely different from the functioning, components and requirements of an automobile engine, and thus the repair/cleaning thereof is also distinct. For example, a jet engine is made up of a number of modules. Applicant's process can advantageously clean the feed tubes that support these modules.

To further illustrate the distinctions between a jet engine and an automobile engine, Applicant notes the following comments. An example of a turbojet engine may be characterized by: the flow of air through the engine to propel the aircraft forward; may be classified as a continuous combustion engine because power is continuously produced; combustion takes place following compression in a different section of the engine; air is compressed using a number of rotating

fans; air intake is automatic due to aircraft forward motion; forward motion is produced due to high velocity air exiting the engine at its rear section; compressors driven using high pressure shaft, which is operated by the extraction of energy from high velocity air by the turbines at the rear section of the engine; much air bypasses compression stage to be used elsewhere in order to improve engine efficiency; components include a fan, low and high pressure compressors, a combustion chamber, low and high pressure turbines and a jet nozzle; and fuel is injected to combustion chamber separately to the compressed air.

In contrast, an example of a four stroke combustion engine may be characterized by: four strokes of a piston inside a cylinder (intake, compression, power and exhaust); classified as a reciprocating engine because power is not continuously produced; one power stroke for every four strokes total; air is compressed through the piston motion; compression and combustion stages take place within the same chamber; valve operation for air intake and exhaust; power transmission through piston motion to engine; air undergoes compression and combustion; main components include a crankshaft, camshafts, valves, sparkplug and piston; and air and fuel enter cylinder premixed.

Monteath is not at all concerned with providing a gas turbine engine including the claimed engine components and selectively cleaning one particular component of the gas turbine engine. Moreover, Monteath's hoses are not connected to each end of one component, an oil scavenge tube of a gas turbine engine, such that fluid circulates through the hoses, each hose having only one opening at each end, as claimed by Applicant.

In Monteath's "Operation summary," an "automobile having the engine cooling system to be cleaned is driven into close proximity with [the] device and the top hose between the radiator and engine block removed." (Col. 8, lines 11-20). Next, Monteath discloses that the thermostat of the cooling system is removed from the lower hose and the lower hose is replaced. Thereafter, hoses 115 and 116 are connected to the engine block and radiator from which the top hose was removed. (Col. 8, lines16-29). In further contrast to the presently claimed invention, Monteath

discloses the simultaneous introduction of air and water into the cooling system of an automobile. See Column 8, lines 44-62.

The addition of Awad does not cure the shortcomings of Monteath. Awad, as in Monteath, relates to cleaning automobile engines. No gas turbine engine is provided. Awad does not remotely relate to providing a gas turbine engine and selectively cleaning a particular component of the gas turbine engine. Awad discloses a method and apparatus for connecting an engine flushing system for flushing the lubrication system of an automobile engine having a detachable engine lubricant filter. The problem addressed by Awad is distinct from that of the subject claims and the skilled artisan would not even be motivated to look to Awad for guidance. More particularly, as described at paragraph [0036] of Awad, a problem with prior automobile flushing systems is that they employ an adapter that is put in place of the oil filter for the automobile engine and/or the crank case drain. This means that the flushing system needs to have an operator and carry around a relatively large set of different adapters for different makes and models of cars, gasoline and diesel engines and the like. Thus, according to Awad, there exists a need for a system that facilitates replacing oil in the engine after slushing has occurred, particularly if synthetic oil is to be used, which requires a complete flush before introduction of the synthetic oil, which cannot be mixed with regular oil. The Examiner even recognizes that Monteath in view of Awad fails to teach cleaning an oil scavenge tube of a gas turbine engine.

However, the Examiner states that it would have been obvious to modify the teachings of Monteath to include these two hoses and thus arrive at the subject claims. Applicant respectfully disagrees.

Awad's automobile engine 300 shown in Fig. 4 contains a detachable lubricant filter 306, which is of a particular size and has a particular connection mechanism to the engine 300 depending upon the make and model of the engine/vehicle in which the engine 300 is, or whether the engine is a gasoline or a diesel engine (See, paragraph [0054]). As further described in paragraph [0054], when it is desired to perform engine flushing, the flush input hose 206 may be connected

to the lubricant filter outlet portion 324 by a flush input connecting unit 224 that is adapted to penetrate the casing 310 of the detachable lubricant filter 306 at an appropriate location. The flush input connecting unit 224 may further comprise a connector 228, which may have a flange 230, to connect the flush input connecting unit 224 to the flush input hose 206.

As described at paragraph [0065], during operation, used and dirty lubricant from the engine is drawn up through flush outlet hose 204 via a vacuum. Thereafter, cleaning fluid is forced through flush input hose 206 such that the interior of the automobile engine is filled with the cleaning fluid. The cleaning fluid is circulated through the engine, and the spent cleaning fluid is then removed and fresh lubricant added.

Awad does not suggest connecting one hose to one end of an oil scavenge tube of a gas turbine engine and another hose to the other end of a oil scavenge tube of a gas turbine engine. Awad connects one hose to an entire automobile engine and another hose to another end of an entire automobile engine so that used and dirty lubricant from the automobile engine interior may be removed via a vacuum and then cleaning fluid circulated through the entire automobile engine. Applicant does not claim a method whereby cleaning fluid circulates thorough an entire automobile engine interior, or even an entire gas turbine engine interior.

Additionally, Awad does not disclose or suggest using its hoses to flow compressed air through each hose and an oil scavenge tube of a gas turbine engine for a predetermined amount of time. Nor does Awad disclose or suggest using its hoses in a method comprising:

pumping a cleaning fluid through each hose and an oil scavenge tube of a gas turbine engine for a predetermined amount of time; ceasing the cleaning fluid flow, followed by purging with the air to remove the cleaning fluid from the oil scavenge tube; pumping water through each hose and the oil scavenge tube for a predetermined amount of time; ceasing water flow, followed by another purge with the air to remove the water from the oil scavenge tube; and disconnecting each hose from the tube, wherein the blockage is removed from the oil scavenge tube and a gas turbine engine component is repaired.

Monteath, alone or in combination with Awad, does not disclose nor suggest providing a gas turbine engine comprising a fan, a plurality of compressors, a combustion chamber, and a turbine including an annular rear turbine frame supporting a bearing which rotatably supports an aft end of a shaft, the engine also including an oil scavenge tube of the turbine rear frame, wherein the gas turbine engine has been in aircraft service and the tube includes blockage as a result of this operation of the gas turbine engine.

Nor do these reference suggest the foregoing in combination with providing a mobile flushing unit and cleaning the oil scavenge tube of the gas turbine engine, by providing two flexible hoses attached to a mobile flushing unit, each hose having only one opening at each end, and connected to each end of an oil scavenge tube such that fluid circulates through the hoses. One of Monteath's flexible hoses are adapted to be connected to an automobile engine block and the other is adapted to be connected to an automobile radiator (see Fig. 5 of Monteath).

As disclosed in Applicant's specification at page 2, a problem sometimes encountered in the cleaning of oil scavenge tubes of a turbine rear frame is heavy coking and blocking. This problem may be addressed by stripping the turbine rear frame, including the scavenge tube, off of the low pressure module for cleaning, as the scavenge tube cannot be removed or flushed in situ. During this cleaning, the turbine rear frame may be positioned horizontally and the scavenge tube then blocked at one end. Cleaning fluid may then be manually poured into the tube and after an appropriate amount of time the fluid may be eliminated from the tube. This process may be repeated for several hours, even days, until the tube is cleared of the blockage. Although this cleaning process is effective, it is often costly and time consuming. Accordingly, there exists a need for effective cleaning of these tubes in the repair thereof. The subject claims satisfies this need.

Applicant respectfully asserts that there is no teaching, suggestion or motivation that would lead one of ordinary skill in the art to combine and then modify the teachings of the cited references in

an attempt to arrive at the present claims. Without such a teaching or suggestion, the invention may only be considered obvious in hindsight, which is an improper basis for rejection.

As claim 1 is believed to be patentable, the dependent claims are also believed to be patentable in view of their dependency from an allowable claim. All issues having been addressed, the subject application is believed to be in condition for immediate allowance. No new issues are raised that would require an additional search and thus the Examiner is requested to enter and consider and subject Amendment. Accordingly reconsideration and allowance is requested.

Should the Examiner believe that a discussion would help advance the prosecution of the subject application, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,

Christine Wilkes Beninati, July 25, 2006

Christine Wilkes Beninati (Reg. No. 37,967) Date

Harrington & Smith, LLP
4 Research Drive
Shelton, CT 06484-6212
Customer No. 29683
Telephone: (203) 925-9400

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July 25, 2006 Debra Bongetti

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